

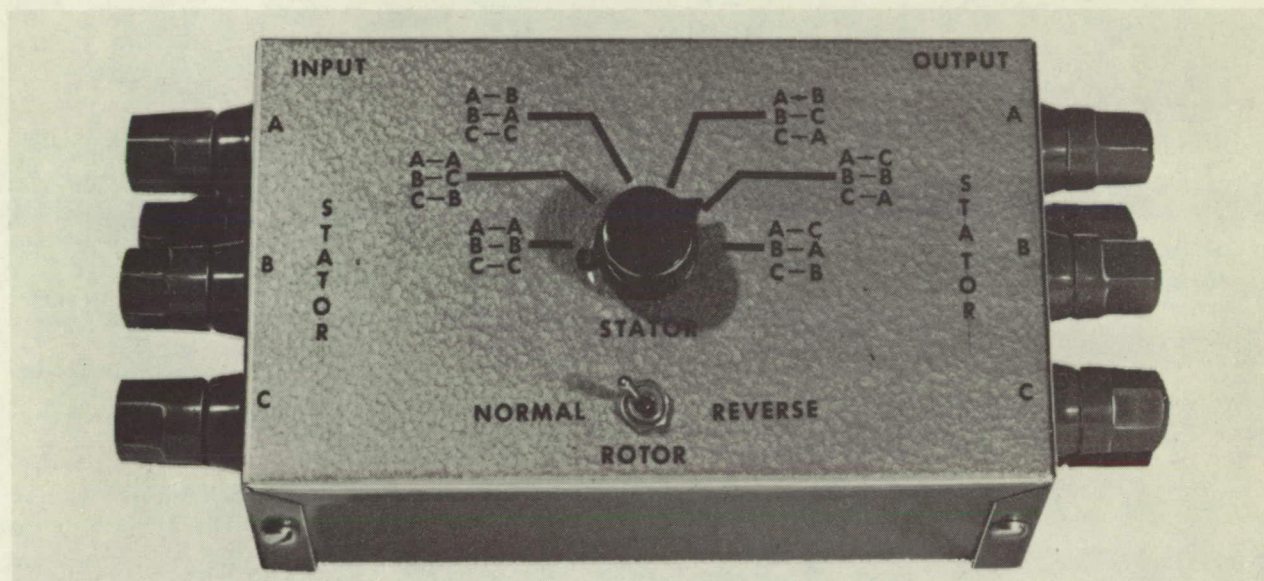
# NASA TECH BRIEF

## *Langley Research Center*



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### Synchro Phase Selector Aid



#### The problem:

Numerous three-phase synchro devices are contained in equipment used by NASA in conducting research. These devices are phase sensitive and it is essential that the synchro receiver be properly phased with the synchro transmitter in order to obtain an accurate synchro output.

Synchro indexing and lead notations are inconsistent among manufacturers, and the interfacing of equipment frequently becomes time consuming as well as hazardous in certain situations (particularly in a flight environment).

The method most commonly used to determine proper interconnections uses clip leads and the trial and error interchange of these leads. However, it is difficult to keep track of the possible combinations by use of this trial and error method. Also, trial and error can be hazardous because of the possibility of shorting the leads during their interchange.

#### The solution:

A synchro phase selector (see illustration) was developed to permit the multiple leads of synchro devices to be randomly connected while the proper interconnections are determined by operating the selector switches. Operation of these switches varies both the phase and rotation relationship of the synchro devices.

#### How it's done:

A six-position, three-pole rotary switch is wired into input and output binding posts to permit the A, B, and C stator input to appear at the A, B, and C stator output in any one of six different combinations, as seen in the illustration. The rotor terminals are wired through a double-pole double-throw toggle switch so that the switch reverses the rotor leads, thus any of the 12 possible interconnection combinations may be checked. After the proper interconnection has been determined, the synchro phase selector is removed and the leads are permanently connected.

(continued overleaf)



**Note:**

Additional information on this device includes a wiring diagram. Requests for further information should be directed to:

Technology Utilization Officer  
Langley Research Center  
Mail Stop 139A  
Hampton, Virginia 23665  
Reference B73-10160

**Patent status:**

NASA has decided not to apply for a patent.

Source: F. H. Austin and G. C. Moen  
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